Abstract

Fresh broccoli has been identified as being a good dietary source of a range of phytochemicals, in particular glucosinolates and flavonols, which nave been shown to protect against certain cancers and cardiovascular disease. Time delays from harvest to produce reaching the consumer result in a deterioration of visual quality and the decline in some important vitamins, such as vitamin C, however there is little information available on what happens to phytochemicals during postharvest handling. This study investigated the fate of glucoraphanin and the flavonols quercetin and kaempferol in broccoli heads after harvest. Broccoli cv "Marathon" was stored at 1°C or 4°C (95-100% relative humidity) for 2,7, 14, or 28 days to simulate transport conditions before transfer to 8° C, 15°C or 20°C (approximately 75% relative humidity) for 3 days to simulate marketing conditions. At the end of both phases, heads were rated for visual quality and analysed by HPLC for glucoraphanin, quercetin and kaempferol . As expected, visual quality declined with increasing storage temperature and length of storage, mainly through yellowing and loss of turgor. Glucoraphanin, quercetin and kaempferol levels were not significantly different between temperatures and time during both the transport and marketing phases. These results suggest that current postharvest handling practices are likely to have no deleterious effect on the levels of phytochemicals in broccoli.